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EXAMINER

FLEURANTIN, JEAN B

ART UNIT

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2162

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/790,657

**Applicant(s)**

KEKRE ET AL.

**Examiner**

JEAN B. FLEURANTIN

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/18/2008 has been entered.

The following is the current status of claims:

Claims 1-31 remain pending for examination.

### ***Response to Arguments***

2. Applicant's argument, filed on 09/18/2008, with respect to the claims have been fully considered but they are not persuasive because the amendment does not overcome the 35 U.S.C. §112, second paragraph, 101 and 103 rejections.

Therefore, the independent claims 13 and 31 and also dependent claims are rejected under 35 U.S.C. 112, second paragraph.

The independent claims 1, 23 and 24 and also dependent claims are rejected under 35 USC § 101.

Moreover, claims 1-3, 5, 7, 8, 10-14, 16, 18, 19 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant admitted prior art, pages 1-7 "APA" in view of U.S. Patent No. 5,742,792 "Yanai" and further in view of U.S. Patent No. 7,149,858 "Keselev".

For the purpose of examination the Examiner interprets "first secondary" as "a secondary node". Since there is not plurality of secondary nodes set forth in the claim as recited in all independent claims.

The same informality is also applied to "first replica" as recited, specifically in independent claims 24 and 31.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 13 and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claim 13**

A single claim which claims both "... the computer system implements a method in response to executing the instructions and in response to receiving modified data of the data volume from the primary node, the method comprising: ..." is indefinite. See 2173.05(p) [R-5].

The dependent claims are rejected under the same rationale.

**Claim 31**

a.) A single claim which claims both "...a computer system of a secondary node, wherein the computer system implements a method in response to executing the instructions, the method comprising: ..." is indefinite. See 2173.05(p) [R-5].

b.) Claim 31 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the second secondary node receiving and storing the processed data in memory.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 24-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims recite "transmitting the results of the data processing to the primary node, wherein the primary node comprises the data volume" which renders the claim indefinite.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 15-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 15-22 recite the limitation "The computer readable medium" in claim 15, line 1; claim 16, line 1; claim 17, line 1, claim 18, line 1; claim 19, line 1; claim 20, line 1; claim 21, line 1 and claim 22, line 1. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1, 23 and 24 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

As set forth in MPEP 2106:

As per independent claims 1, 23 and 24

The independent claims 1, 23 and 24 are directed to a method. The claim recites a series of steps without producing a physical transformation. The claimed subject matter lacks a practical application of a judicial exception (law of nature, abstract idea, naturally occurring article/phenomenon) since it fails to produce a useful and tangible result.

The dependent claims are rejected under the same rationale.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5, 8, 10-14, 16, 19, 21-27 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant admitted prior art, background of the specification, pages 1-7 ("APA") in view of U.S. Pat. No. 5,742,792 issued to Yanai et al., ("Yanai"), and further in view of U.S. Pat. No. 7,149,858 issued to Kiselev ("Keselev").

As per claim 1, APA discloses "method comprising modifying data of a data volume to create modified data" (i.e., modified data of volume (V); see page 6, paragraph [0015], lines 1-2);

"a primary node transmitting the modified data to a first secondary node" (i.e., modified data transmitted from primary node P to each of the secondary nodes SS and AS; see page 6, paragraph [0015], lines 1-3), "wherein the first secondary node comprises a first replica of the data volume" (i.e., secondary nodes storing contents of replica of RVA (first node); see page 5, paragraph [0013], lines 11-14 and Fig. 1, items RVA and RVS);

"the first secondary node receiving and processing the modified data" (i.e., the secondary nodes AS and SS receiving a copy of each logical block volume (V) containing modified data; see page 6, paragraph [0015], lines 5-8)

"the first secondary node transmitting the processed data to the primary node" (i.e., directing request to secondary nodes AS or SS, reading and returning a copy of requested data from replica RVA or RVS (primary nodes); see page 2, lines 2-4 and Fig. 1),

"the primary node receiving and transmitting the processed data to a second secondary node" (i.e., requests from client computer systems are redirected to the secondary nodes AS or SS; see page 1, paragraph [0002], lines 10-11 and Fig. 1), "wherein the second secondary node comprises a second

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replica of the data volume" (i.e., replicas, creating, modifying and maintaining at remotely located secondary nodes; see page 1, paragraph [0002], lines 5-8 and Fig. 1).

APA fails to explicitly disclose generate processed data. However, Yanai discloses generate processed data (see Yanai col. 33, line 58 to col. 34, line 51).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method of APA by generating processed data as disclosed by Yanai (see Yanai, col. 34, lines 15-23 and Figs 13A and 13B). Such a modification would allow the method of APA to provide a data processing system which automatically and asynchronously, with respect to a first host system, generate and maintains a back-up copy of a primary storage device at a location physically remote from the primary storage device, without intervention from the host which seriously degrades the performance of the data transfer link between the primary host computer and the primary storage device (see Yanai col. 2, lines 19-26), therefore, improving the accuracy and the reliability of the efficient operations using assistance from secondary site.

While the combination of APA/Yanai substantially discloses the claimed invention, the combination fails to disclose in detail the second secondary node receiving and storing the processed data in memory. However, Kiselev discloses the second secondary node receiving and storing the processed data in memory (see Kiselev col. 4, lines 51-67). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method of APA/Yanai by receiving and storing the processed data in memory as disclosed by Kiselev (see Kiselev col. 4, lines 65-67). Such a modification would allow the method of APA/Yanai to provide increased data reliability (see Kiselev col. 2, lines 6-7).

As per claim 2, APA further discloses "the first secondary node overwriting data of the first replica with the modified data" (i.e., overwriting data; see page 6, paragraph [0014], lines 3-14).

As per claim 3, APA discloses "the first secondary node processes the modified data according to a data compression algorithm" (i.e., data compression algorithm; page 7, paragraph [0017], lines 3-5).



As per claim 5, APA discloses "the first secondary node processes the modified data according to a checksum algorithm" (i.e., a checksum summing; see page 7, paragraph [0017], lines 1-3).

As per claim 8, APA discloses "the first secondary node processes the modified data according to a difference computation algorithm" (i.e., differences between the data of a modified logical memory block; see page 7, paragraph [0017], lines 7-9).

As per claim 10, APA further discloses "the primary node transmits the modified data to the first secondary node via a first communication link, wherein the primary node transmits the processed data to the second secondary node via a second communication link, wherein the first communication link is defined by a first data transmission bandwidth" (i.e., the time needed to update replicas RVA and RVS depends on the bandwidth of data link and communications network; (see figure 1, page 7, paragraph [0016]), "wherein the second communication link is defined by a second data transmission bandwidth, and wherein the first data transmission bandwidth is greater than the second data transmission bandwidth" (i.e., data link is presumed to have a higher data communication bandwidth when compared to communication network " (see figure 1, page 7, paragraphs [0016 and 0017]).

As per claims 11 and 12, APA discloses "the first replica is maintained as a synchronous replica of the data volume, and wherein the second replica is maintained as an asynchronous replica of the data volume" (see Fig. 1 and pages 1-2, paragraph [0002]).

As per claims 13-14, 16, 19 and 21-22, the limitations of claims 13-14, 16, 19 and 21-22 are similar to claims 1-3, 5, 8 and 10-12, therefore, the limitations of claims 13-14, 16, 19 and 21-22 are rejected in the analysis of claims 1-3, 5, 8 and 10-12, and these claims are rejected on that basis.

As per claim 23, the limitations of claim 23 are similar to claim 1, therefore, the limitations of claim 23 are rejected in the analysis of claim 1, and this claim is rejected on that basis.

As per claim 24, in addition to claim 1, APA further discloses "a method further comprising modifying data of a data volume to create modified data" (i.e., modified data of volume (V); see page 6, paragraph [0015], lines 1-2);

"a primary node transmitting the modified data to a first secondary node" (i.e., modified data transmitted from primary node P to each of the secondary nodes SS and AS; see page 6, paragraph [0015], lines 1-3), "wherein the first secondary node comprises a first replica of the data volume" (i.e., secondary nodes storing contents of replica of RVA (first node); see page 5, paragraph [0013], lines 11-14 and Fig. 1, items RVA and RVS);

"transmitting the results of the data processing to the primary node" (see page 2, lines 3-4), "wherein the primary node comprises the data volume" (i.e., RVA and RVS maintaining copies; see page 3, paragraph [0008], lines 7-9);

"storing the results of the data processing in memory" (i.e., storing identical data; see page 4, lines 10-12).

As per claims 25-27 and 30, the limitations of claims 25-27 and 30 are similar to claims 2-12, therefore, the limitations of claims 25-27 and 30 are rejected in the analysis of claims 2-12, and these claims are rejected on that basis.

As per claim 31, in addition to claim 1, APA further discloses "a computer readable medium executable by a computer system of a secondary node, wherein the computer system implements a method in response to executing the instructions" (i.e., instructions executing on processors of host(s); see page 2, paragraph [0006], lines 1-3), "the method comprising processing data, wherein the secondary node comprises a replica of a first data" (i.e., secondary nodes storing contents of replica of RVA (first node); see page 5, paragraph [0013], lines 11-14 and Fig. 1, items RVA and RVS);

"transmitting the results of the data processing to the primary node" (see page 2, lines 3-4), "wherein the primary node comprises the first data volume" (i.e., RVA and RVS maintaining copies; see page 3, paragraph [0008], lines 7-9).

***Allowable Subject Matter***

6. Claims 4, 6-7, 9, 15, 17-18, 20 and 28-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**CONTACT INFORMATION**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEAN B. FLEURANTIN whose telephone number is (571)272-4035. The examiner can normally be reached on 10:00 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOHN E. BREENE can be reached on 571 - 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JEAN B. FLEURANTIN/  
Primary Examiner, Art Unit 2162